## REMARKS

Claims 1-4 are pending in this application.

Claims 1, 2 and 4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over GB Patent No. 1499536 to Mucenieks ("Mucenieks") in view of U.S. Patent No. 5,108,731 to Schoubye ("Schoubye"), as evidenced by U.S. Patent No. 5,017,350 to Hakka et al. ("Hakka") and U.S. Patent No. 3,953,578 to Thirion ("Thirion"). Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Mucenieks in view of Schoubye and further in view of U.S. Patent No. 4,678,481 to Diep ("Diep"), as evidenced by U.S. Patent Appl. Publ. No. 2004/0062697 to Mortson et al. ("Mortson"). These rejections are respectfully traversed.

The subject matter of claims 1-4 would not have been obvious over the cited prior art references, considered alone or in combination. There is no motivation for a person of ordinary skill in the art to combine Mucenieks with Schoubye, to arrive to the claimed invention, as the examiner asserts. In the Office Action dated September 3, 2008, the examiner (addressing the passage on page 3, lines 65-67 of Mucenieks) states that "the waste gas stream is contacted with the aqueous hydrogen peroxide solution in any conventional contacting device," noting that it is obvious not to use the absorption tower as claimed.

Applicants submit that this assertion is based on impermissible hindsight. Even if trying to ignore the teaching of Mucenieks (which is the use of an absorption tower, as revealed throughout the entire reference and explicitly disclosed in the cited passage on page 3, lines 65-67 and in the examples), a person skilled in the art would still at least consider using any conventional contacting device other than the absorption tower. Mucenieks does not suggest in any way that one may omit the use of a contacting device, such as an absorption tower. Mucenieks teaches that there is no need of an aerosol filter downstream (as acknowledged by the examiner) and Mucenieks also teaches the need of using an absorption tower or a conventional contacting device.

The claimed invention (as recited in claim 1) differs from Mucenieks in at least two aspects: the use of aerosol filter downstream and no use of absorption tower. The technical effect of

these differences is that a simpler process is provided (since there is no absorption tower). The objective technical problem underlying the invention may, thus, be formulated as how to provide a simpler process for the removal of $SO_2$ from off-gases. This problem is solved by the invention as shown in the example.

Starting with Mucenieks and looking for solutions to the above-noted problem, a person skilled in the art would consider Schoubye. Nevertheless, as already explained in the Amendment filed on June 23, 2008, a person of ordinary skill in the art doing so would only find a teaching on how to design the acid mist filter. The combination of Mucenieks and Schoubye results simply in a process containing an absorption tower (or any conventional contacting device) and an acid mist filter, which represent the conventional technology and not the invention as claimed in claim 1.

The cited passages of Thirion on col. 4, lines 62-64 and line 54, and the newly-cited reference Hakka, fail to address the deficiencies of Mucenieks. The combination of all the above references still results in a process containing an absorption tower (or any conventional contacting device) and an acid mist filter or a demister and the like. Thus, the Office Action fails to establish a *prima facie* case of obviousness, and withdrawal of the rejection of claims 1-3 is respectfully requested.

With respect to the rejection of claim 3, Applicants submit that the embodiment of Fig. 3 of Diep (comprising an electrostatic precipitator), although not being related to the same technical problem of $SO_2$ removal, seems to be regarded by the examiner as the closest prior art with respect to the invention of claim 3. As submitted in the Amendment filed on June 23, 2008, Diep discloses a process for improving the efficiency of electrostatic precipitators by creating the conditioning agent $SO_3/H_2SO_4$ by adding $H_2O_2$ to a flue gas containing $SO_2$ at temperatures in the range of 300-400°F (approximately 150 to 200°C) or even 300 to 500°F (approximately 150 to 260°C for the embodiment of Fig. 3). $SO_2$ is added to the gas in order to ensure a high $SO_2$ content (2500 ppmv or above).

Claim 3 of the present invention differs from Diep in that the process of the claimed invention is directed to the removal of $SO_2$ in off-gases and that the temperature of the gas is lower (30-150°C). Further, there is no addition of $SO_2$ to the gas. The technical effect of this difference when using electrostatic precipitators is not stated in the application. The objective technical problem may, therefore, be formulated as how to provide an alternative process for the removal of $SO_2$ from off-gases.

Referring to Fig. 3 of Diep and seeking solutions to the above-noted problem, a person of ordinary skill in the art would be deterred from using the overall teaching of Diep, which is completely different from that of the claimed invention (namely, to improve the efficiency of electrostatic precipitator for removing fly ash (high resistivity particulate matter), see, e.g., col. 1, lines 5-10 and lines 25-27). A person of ordinary skill in the art would be prompted to add $SO_2$ to the gas of Diep, while, in contrast, in the present invention it is desired to remove $SO_2$ from the off-gas.

A person skilled in the art would probably consult Mortson as this reference is concerned with the problem of $SO_x$ reduction. Paragraph [0014] of Mortson suggests the use of electrostatic precipitators but only in combination with wet flue gas desulfurisation which, accordingly, requires the use of complicated systems for addition of lime and the like. This solution is completely different from the one of the claimed invention, in that it is much more complicated and much more expensive than the one of the claimed invention.

Since Mortson does not cure the deficiencies of Diep to arrive at the invention of claim 3, the Office Action fails to establish a *prima facie* case of obviousness.

A correct starting point for developing the invention of claim 3 is rather Mortson (and not Diep), as Mortson is concerned with the same problem of SOx reduction. The invention of claim 3 differs from Mortson in that the wet electrostatic precipitator is used without wet flue gas desulfurisation requiring addition of lime and the like, and in that the temperature of the gas of the present invention is 30-150°C. Since the technical effect of these differences is not stated in the

application, the objective technical problem is formulated as how to provide an alternative process for the removal of $SO_2$ from off-gases.

Seeking solutions to the above-noted problem, a person skilled in the art would only find in Mortson a teaching pointing at the use of several sorbents and the like. There is no suggestion, however, that the process can be conducted with only a wet electrostatic precipitator together with the $H_2O_2$ injection at temperatures of 30-150°C.

One skilled in the art is less likely to consider Diep as this reference addresses a completely different problem. Yet, even when considering the most relevant part of this reference (Fig. 3 and corresponding text), Diep is completely inapposite as one skilled in the art is, in fact, guided by Diep to add sulfur dioxide to the gas to improve the efficiency of the electrostatic precipitator by removing high resistivity particulate matter. There is no suggestion whatsoever that the gas requires a temperature of 30-150°C and that sulfur dioxide can be removed by also using hydrogen peroxide in combination with the wet electrostatic precipitator.

Applicants maintain all remarks and arguments submitted with the June 23, 2008 Amendment. Withdrawal of the rejections of all pending claims is solicited.

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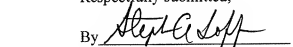
Respectfully submitted,

By 

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